Amendments to the Specification:

Please amend the Specification as follows.

Please replace the title of the invention with the following replacement title:

Infrared Gas Detector

Please replace the paragraph starting at page 2, line 1 with the following amended paragraph:

Increasing the length of the optical path in a gas detector does not necessarily provide a corresponding increase in ~~with~~ the amount of energy capable of being measured. To the contrary, increasing the path length often results in diminishing returns in terms of energy. FIG. 1 illustrates the relationship between optical path length and absorption. The increase in absorbance is exponential relative to an increase in optical path length. As the optical path length gets larger, an incremental increase in path length provides a relatively small increase in absorbance, rendering the increase in path length less efficient in terms of absorption. Thus, incrementally increasing the optical path length of the detector becomes an increasingly less efficient means for increasing the amount of measurable energy.

Please replace the paragraph starting at page 11, line 8 with the following amended paragraph:

Summing the signal can also minimize or effectively ~~eliminated~~ eliminate the error and noise present in the signal. Sources of error include variations in the amount of radiation incident on each analytical and reference detector due to positioning of the individual analytical detectors, reference detectors, the source of radiation or a combination thereof. By increasing the number of signals measured and calculated, the electrical signal noise that is inherently present in the system is minimized, or even essentially eliminated.

Please replace the paragraph starting at page 15, line 20 with the following amended paragraph:

In other embodiments, the gas detector 100 is configured to have an open structure 102 that includes spacers 104 that join a component ~~106~~ 110 (e.g., a housing) that includes the source of infrared radiation and a component 108 (e.g., a housing) that includes the detectors, an example of which is illustrated in FIG. 5. The length of the spacers 104 is selected to define the desired length of the optical path. The open nature of the housing enables a gaseous sample to pass in and out of the sample chamber 106 with minimal interference from the gas detector housing.